

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Inventor: Raymond F. Schinazi et al.**

**Appl. No.: 10/061,128**

**U.S. Patent No.: 6,911,424**

**Filed: January 30, 2002**

**Granted: June 28, 2005**

**Title: 2' Fluoronucleosides**

**REQUEST FOR CERTIFICATE OF CORRECTION  
FOR PATENT OFFICE AND PATENTEE MISTAKES (37 C.F.R. §§ 1.322 & 1.323)**

---

Certificate of Correction Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Patentees note that errors of a typographical nature or character appear in the patent as a result of Patent and Trademark Office (PTO) mistakes. The attached Form PTO-1050 describes the errors in detail. Patentees respectfully request that the Commissioner issue a Certificate of Correction to correct the errors appearing in the printed patent. Correction thereof does not involve such changes in the patent that would constitute new matter or require re-examination.

The sentences "The invention described herein was made with Government support under grant number AI32351 awarded by the National Institutes of Health. The United States Government has certain rights to this invention." were included with the initial filing.

The corrections to columns Column 67, line 12 to line 29; Column 68, line 36; and Column 68, line 64 to column 69, line 2, to the text and structures in claims 3, 9, and 10 are due to an apparent printing error and in part due to an obvious error in claim 3 by the Applicants. The last amendment and response dated September 10, 2003 (attached), included claims 3, 9, and 10 with the appropriate text and structures reflected in the attached Certificate of Correction.

The duplicate term "phosphate" has been removed from the definition of R<sup>2</sup> in claim 3. This corrects an obvious minor error in the claim and does not modify the claim scope.

The payment of \$100.00 for the Certificate of Correction fee is enclosed. The Commissioner is authorized to charge any additional fee, or to credit any overpayment, to Deposit Account No. 11-0980.

If any issues exist that can be resolved by a telephone conference, please contact the undersigned attorney at the number provided below.

Respectfully submitted,

/John Esteban Ezcurra/

John Esteban Ezcurra  
Reg. No. 61,004

KING & SPALDING LLP  
1180 Peachtree Street, NE  
Atlanta, Georgia 30309-3521  
(404) 572-4600 (Telephone)  
(404) 572-5134 (Facsimile)  
K&S Docket No. 04342.105067

Appl. No. : 10/061,128  
Applicant : Schinazi *et al.*  
Filed : January 30, 2002  
TC/A.U. : 1637  
Examiner : Jezia Riley

Confirmation No. 1763

Docket No. : 18085.105232 (EMU 2000 CIP)  
Customer No. : 20786

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

### AMENDMENT AND RESPONSE TO OFFICE ACTION

Sir:

In response to the Office Action of March 10, 2003, for which a response to the Office Action is due on September 10, 2003, with a three month extension of time, please amend the above-referenced application as follows. A Petition for Extension of Time is enclosed herewith.

Amendments to the Claims begin on page 2 of this paper.

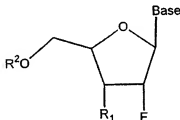
Remarks/Arguments begin on page 32 of this paper.

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listing, of claims in the application:

**Listing of Claims:**

1. (previously amended) A method for the treatment of hepatitis B infection in humans, comprising administering to a patient in need thereof an effective treatment amount of a 2'-fluoro- $\beta$ -D-nucleoside of the formula:



wherein

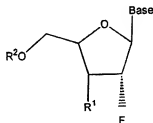
Base is a purine base;

R<sup>1</sup> is OH, H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

2. (previously amended) A method for the treatment of hepatitis C infection in humans, comprising administering to a patient in need thereof an effective treatment amount of the compound of the formula:



wherein

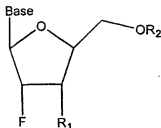
Base is a purine or pyrimidine base;

R¹ is OH, H, OR³, N₃, CN, halogen, CF₃, lower alkyl, amino, loweralkylamino, di(lower)alkylamino, or alkoxy, and base refers to a purine or pyrimidine base;

R² is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

R³ is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

3. (previously amended) A method for the treatment of abnormal cell proliferation in humans, comprising administering to a patient in need thereof an effective treatment amount of a 2'-fluoro-β-L-nucleoside of the formula:



wherein

Base is a purine or pyrimidine base;

- $R^1$  is OH, H,  $OR^3$ ,  $N_3$ , CN, halogen,  $CF_3$ , lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;  
 $R^2$  is H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid, or an amino acid; and  
 $R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

4. (previously amended) A 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of the formula:



$Y = S, CH_2$  or  $CHF$

wherein

Base is a purine base;

- $R^1$  is H,  $OR^3$ ,  $N_3$ , CN, halogen,  $CF_3$ , lower alkyl, amino, loweralkylamino or di(lower)alkylamino;  
 $R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and  
 $R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

5. (original) The compound of claim 4, wherein the base is a purine base,  $R^2$  is H, monophosphate, diphosphate, triphosphate or acyl, or a pharmaceutically acceptable salt thereof.

6. (original) The compound of claim 4, wherein the purine base is selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.
7. (previously amended) A pharmaceutical composition comprising an effective treatment amount of a 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of the formula:



Y = S, CH<sub>2</sub> or CHF

wherein

Base is a purine base;

R<sup>1</sup> is H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

8. (original) The composition of claim 7, wherein the base is a purine base selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.
9. (previously amended) A method for the treatment of hepatitis B infection comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of the formula:



Y = S, CH<sub>2</sub> or CHF

wherein

Base is a purine base;

R<sup>1</sup> is H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug; acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

10. (previously amended) A method for the treatment of hepatitis C infection comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro-nucleoside of the formula:



Y = S, CH<sub>2</sub> or CHF

wherein

Base is a purine or pyrimidine base;

R<sup>1</sup> is H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate,, a lipid or an amino acid; and



R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

11. (previously amended) A method for inhibiting the replication of HIV comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro-(β-D or β-L)-nucleoside of the formula:



Y = S, CH<sub>2</sub> or CHF

wherein

Base is a purine base;

R<sup>1</sup> is H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

12. (previously amended) A method for the treatment of abnormal cell proliferation in humans comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro-nucleoside of the formula:



Y = O, S, CH<sub>2</sub> or CHF

wherein

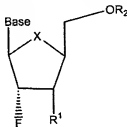
Base is a purine or pyrimidine base;

R<sup>1</sup> is H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

13. (previously amended) A 2'-fluoro-β-L-nucleoside of the formula:



wherein

X is S;

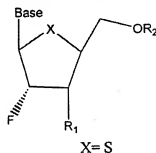
Base is a purine base;

R<sup>1</sup> is OH, H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

$R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

$R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

14. (original) The compound of claim 13, wherein the base is a purine base,  $R^2$  is H, monophosphate, diphosphate, triphosphate or acyl, or a pharmaceutically acceptable salt thereof.
15. (original) The compound of claim 14, wherein the purine base is selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.
16. (previously amended) A pharmaceutical composition comprising an effective treatment amount of a 2'-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

Base is a purine base;

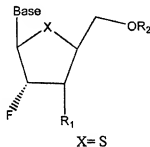
$R^1$  is OH, H,  $OR^3$ ,  $N_3$ , CN, halogen,  $CF_3$ , lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

$R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

$R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a

pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

17. (original) The composition of claim 16, wherein the base is a pyrimidine base selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.
18. (previously amended) A method for the treatment of hepatitis B infection comprising administering to a patient in need thereof an effective treatment amount of a 2'-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

Base is a purine base;

R<sup>1</sup> is OH, H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug; acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

19. (previously amended) A method for the treatment of hepatitis C infection comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro-( $\beta$ -L)-nucleoside of the formula:



X = S, CH<sub>2</sub> or O

wherein

Base is a purine or pyrimidine base;

R<sup>1</sup> is OH, H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug; acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

20. (currently amended) A method for the inhibition of HIV comprising administering to a host in need thereof an effective treatment amount of a ~~2'-fluoro- $\beta$ -L-nucleoside~~ 3'-fluoro- $\beta$ -L-nucleoside of the formula:



X = S

wherein

Base is a purine base;

R<sup>1</sup> is OH, H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

$R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug; acyl, phosphate, phosphonate, a lipid or an amino acid; and

$R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

21. (previously amended) A method for the treatment of abnormal cellular proliferation in humans comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro-nucleoside of the formula:



$X = S \text{ or } CH_2$

wherein

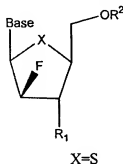
Base is a purine or pyrimidine base;

$R^1$  is OH, H,  $OR^3$ ,  $N_3$ , CN, halogen,  $CF_3$ , lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

$R^2$  is H, monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

$R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

22. (previously amended) A 2'-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

Base is a purine base;

R<sup>1</sup> is H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

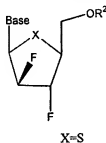
R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

23. (original) The compound of claim 22, wherein the base is a purine base, R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate or acyl, or a pharmaceutically acceptable salt thereof.

24. (original) The compound of claim 23, wherein the purine base is selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.

25. (previously amended) A pharmaceutical composition comprising an effective treatment amount of a 2'-fluoro- $\beta$ -L-nucleoside of the formula:



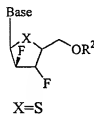
wherein

Base is a purine base; and

$R^2$  is H, monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid optionally in combination with a pharmaceutically acceptable carrier.

26. (original) The composition of claim 25, wherein the base is a purine base selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.

27. (previously amended) A method for the treatment of hepatitis B infection comprising administering to a host in need thereof an effective treatment amount of a 2'- $\beta$ -fluoro- $\beta$ -L-nucleoside of the formula:



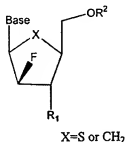
wherein

Base is a purine base; and

$R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid, optionally in combination with a pharmaceutically acceptable carrier.



28. (previously amended) A method for the treatment of hepatitis C infection comprising administering to a patient in need thereof an effective treatment amount of a 2-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

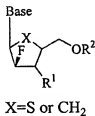
Base is a purine or pyrimidine base;

$R^1$  is OH, H,  $OR^3$ ,  $N_3$ , CN, halogen,  $CF_3$ , lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

$R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

$R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

29. (previously amended) A method for the inhibition of HIV comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

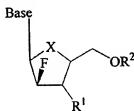
Base is a purine base;

R<sup>1</sup> is OH, H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

30. (previously amended) A method for the treatment of abnormal cellular proliferation in humans comprising administering to a host in need thereof an effective treatment amount of a 2'-fluoro-β-L-nucleoside of the formula:



X = S or CH<sub>2</sub>

wherein

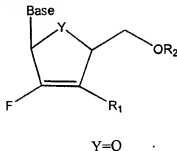
Base is a purine or pyrimidine base;

R<sup>1</sup> is H, OR<sup>3</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, acyl, or phosphate, phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier.

31. (previously amended) A 2'-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

Base is a purine base;

R<sup>1</sup> is OR<sup>3</sup>, N<sub>3</sub>, CN, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

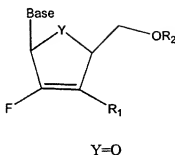
R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid, an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof.

32. (original) The 2'-fluoronucleoside of claim 31, wherein the base is a purine base, R<sup>2</sup> is hydrogen, monophosphate, diphosphate, triphosphate or acyl, or a pharmaceutically acceptable salt thereof.

33. (original) The 2'-fluoronucleoside of claim 31, wherein the purine base is selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.

34. (previously amended) A pharmaceutical composition comprising an effective treatment amount of a 2'-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

Base is a purine base;

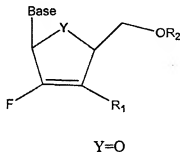
R<sup>1</sup> is OR<sup>3</sup>, N<sub>3</sub>, CN, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, or phosphonate, a lipid or an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable carrier.

35. (original) The composition of claim 34, wherein the purine base is selected from the group consisting of guanine, adenine, hypoxanthine, 2,6-diaminopurine and 6-chloropurine, or a pharmaceutically acceptable salt thereof.

36. (previously amended) A method for the treatment of hepatitis B infection comprising administering to a patient in need thereof an effective treatment amount of a 2'-fluoro-(β-D or β-L)-nucleoside of the formula:



wherein

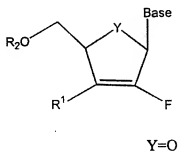
Base is a purine base;

$R^1$  is  $OR^3$ ,  $N_3$ ,  $CN$ ,  $CF_3$ , lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

$R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid, an amino acid; and

$R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof.

37. (previously amended) A method for the treatment of hepatitis C infection comprising administering to a patient in need thereof an effective treatment amount of a 2'-fluoro-nucleoside of the formula:



wherein

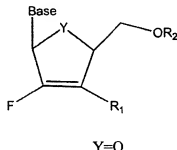
Base is a purine or pyrimidine base;

$R^1$  is  $OH$ ,  $OR^3$ ,  $N_3$ ,  $CN$ ,  $CF_3$ , lower alkyl, amino, loweralkylamino, or di(lower)alkylamino, and base refers to a purine or pyrimidine base;

$R^2$  is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, or phosphate, phosphonate, a lipid or an amino acid; and

$R^3$  is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof.

38. (previously amended) A method for inhibiting the replication of HIV comprising administering to a patient in need thereof an effective treatment amount of a 2'-fluoro- $\beta$ -L-nucleoside of the formula:



wherein

Base is a purine base;

R<sup>1</sup> is OR<sup>3</sup>, N<sub>3</sub>, CN, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid, an amino acid; and

R<sup>3</sup> is acyl, alkyl, phosphate, or other pharmaceutically acceptable leaving group which when administered *in vivo*, is capable of being cleaved to the parent compound, or a pharmaceutically acceptable salt thereof.

39. (original) The 2'-fluoro- $\beta$ -D or  $\beta$ -L-nucleoside of claim 25, wherein R<sup>1</sup> and R<sup>2</sup> are hydrogen.
40. (original) The pharmaceutical composition of claim 16, wherein R<sup>1</sup> and R<sup>2</sup> of the 2'-fluoro- $\beta$ -L-nucleoside are hydrogen.
41. (original) The method of claim 18, wherein R<sup>1</sup> and R<sup>2</sup> of the 2'-fluoro- $\beta$ -L-nucleoside are hydrogen.
42. (original) The method of claim 20, wherein R<sup>1</sup> and R<sup>2</sup> of the 2'-fluoro- $\beta$ -L-nucleoside are hydrogen.
43. (original) The method of claim 21, wherein X of the 2'-fluoro-nucleoside is S.

44. (original) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^1$  and  $R^2$  are hydrogen.
45. (original) The pharmaceutical composition of claim 25, wherein  $R^1$  and  $R^2$  of the 2'-fluoro- $\beta$ -L-nucleoside are hydrogen.
46. (original) The method of claim 27, wherein  $R^1$  and  $R^2$  of the 2'-fluoro- $\beta$ -L-arabinonucleoside are hydrogen.
47. (original) The method of claim 29, wherein  $R^1$  and  $R^2$  of the 2'-fluoro- $\beta$ -L-arabinonucleoside are hydrogen.
48. (original) The method of claim 30, wherein X of the 2'-fluoro- $\beta$ -L-arabinonucleoside is  $CH_2$ .
49. (original) The 2'-fluoro- $\beta$ -D or  $\beta$ -L-nucleoside of claim 13, wherein  $R^1$  is OH or  $OR^3$ .
50. (original) The pharmaceutical composition of claim 16, wherein  $R^1$  of the 2'-fluoro- $\beta$ -L-nucleoside is OH or  $OR^3$ .
51. (original) The method of claim 18, wherein  $R^1$  of the 2'-fluoro- $\beta$ -L-nucleoside is OH or  $OR^3$ .
52. (original) The method of claim 20, wherein  $R^1$  of the 2'-fluoro- $\beta$ -L-nucleoside is OH or  $OR^3$ .
53. (original) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^1$  is OH or  $OR^3$ .
54. (original) The pharmaceutical composition of claim 25, wherein  $R^1$  of the 2'-fluoro- $\beta$ -L-nucleoside is OH or  $OR^3$ .
55. (original) The method of claim 27, wherein  $R^1$  of the 2'-fluoro- $\beta$ -L-arabinonucleoside is OH or  $OR^3$ .

56. (original) The method of claim 27, wherein  $R^1$  of the 2'-fluoro- $\beta$ -L-arabinonucleoside is OH or  $OR^3$ .
57. (previously added) The method of claim 1, wherein  $R^1$  is OH.
58. (previously added) The method of claim 1, wherein  $R^1$  is H.
59. (previously added) The method of claim 1, wherein  $R^1$  is halogen.
60. (previously added) The method of claim 1, wherein  $R^2$  is H.
61. (previously added) The method of claim 1, wherein  $R^2$  is a stabilized phosphate prodrug.
62. (previously added) The method of claim 1, wherein  $R^2$  is acyl.
63. (previously added) The method of claim 2, wherein Base is a purine base.
64. (previously added) The method of claim 2, wherein Base is a pyrimidine base.
65. (previously added) The method of claim 2, wherein  $R^1$  is OH.
66. (previously added) The method of claim 2, wherein  $R^1$  is H.
67. (previously added) The method of claim 2, wherein  $R^1$  is halogen.
68. (previously added) The method of claim 2, wherein  $R^1$  is  $CF_3$ .
69. (previously added) The method of claim 2, wherein  $R^2$  is H.
70. (previously added) The method of claim 2, wherein  $R^2$  is a stabilized phosphate prodrug.
71. (previously added) The method of claim 2, wherein  $R^2$  is acyl.
72. (previously added) The method of claim 3, wherein Base is a purine base.
73. (previously added) The method of claim 3, wherein Base is a pyrimidine base.
74. (previously added) The method of claim 3, wherein  $R^1$  is OH.
75. (previously added) The method of claim 3, wherein  $R^1$  is H.
76. (previously added) The method of claim 3, wherein  $R^1$  is halogen.
77. (previously added) The method of claim 3, wherein  $R^1$  is  $CF_3$ .
78. (previously added) The method of claim 3, wherein  $R^2$  is H.
79. (previously added) The method of claim 3, wherein  $R^2$  is a stabilized phosphate prodrug.
80. (previously added) The method of claim 3, wherein  $R^2$  is acyl.
81. (previously added) The 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of claim 4, wherein  $R^1$  is H.
82. (previously added) The 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of claim 4, wherein  $R^1$  is  $CF_3$ .



83. (previously added) The 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of claim 4, wherein  $R^2$  is H.
84. (previously added) The 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of claim 4, wherein  $R^2$  is a stabilized phosphate prodrug.
85. (previously added) The 2'-fluoro-( $\beta$ -D or  $\beta$ -L)-nucleoside of claim 4, wherein  $R^2$  is acyl.
86. (previously added) The pharmaceutical composition of claim 7, wherein  $R^1$  is H.
87. (previously added) The pharmaceutical composition of claim 7, wherein  $R^1$  is halogen.
88. (previously added) The pharmaceutical composition of claim 7, wherein  $R^1$  is  $CF_3$ .
89. (previously added) The pharmaceutical composition of claim 7, wherein  $R^2$  is H.
90. (previously added) The pharmaceutical composition of claim 7, wherein  $R^2$  is a stabilized phosphate prodrug.
91. (previously added) The pharmaceutical composition of claim 7, wherein  $R^2$  is acyl.
92. (previously added) The method of claim 9, wherein  $R^1$  is H.
93. (previously added) The method of claim 9, wherein  $R^1$  is halogen.
94. (previously added) The method of claim 9, wherein  $R^1$  is  $CF_3$ .
95. (previously added) The method of claim 9, wherein  $R^2$  is H.
96. (previously added) The method of claim 9, wherein  $R^2$  is a stabilized phosphate prodrug.
97. (previously added) The method of claim 9, wherein  $R^2$  is acyl.
98. (previously added) The method of claim 10, wherein  $R^1$  is H.
99. (previously added) The method of claim 10, wherein  $R^1$  is halogen.
100. (previously added) The method of claim 10, wherein  $R^1$  is  $CF_3$ .
101. (previously added) The method of claim 10, wherein  $R^1$  is lower alkyl.
102. (previously added) The method of claim 10, wherein  $R^2$  is H.
103. (previously added) The method of claim 10, wherein  $R^2$  is a stabilized phosphate prodrug.
104. (previously added) The method of claim 10, wherein  $R^2$  is acyl.
105. (previously added) The method of claim 11, wherein  $R^1$  is H.
106. (previously added) The method of claim 11, wherein  $R^1$  is halogen.
107. (previously added) The method of claim 11, wherein  $R^1$  is  $CF_3$ .
108. (previously added) The method of claim 11, wherein  $R^1$  is lower alkyl.
109. (previously added) The method of claim 11, wherein  $R^2$  is H.

110. (previously added) The method of claim 11, wherein  $R^2$  is a stabilized phosphate prodrug.
111. (previously added) The method of claim 11, wherein  $R^2$  is acyl.
112. (previously added) The method of claim 12, wherein Base is a purine base.
113. (previously added) The method of claim 12, wherein Base is a pyrimidine base.
114. (previously added) The method of claim 12, wherein  $R^1$  is H.
115. (previously added) The method of claim 12, wherein  $R^1$  is halogen.
116. (previously added) The method of claim 12, wherein  $R^1$  is  $CF_3$ .
117. (previously added) The method of claim 12, wherein  $R^1$  is lower alkyl.
118. (previously added) The method of claim 12, wherein  $R^2$  is H.
119. (previously added) The method of claim 12, wherein  $R^2$  is a stabilized phosphate prodrug.
120. (previously added) The method of claim 12, wherein  $R^2$  is acyl.
121. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 13, wherein  $R^1$  is OH.
122. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 13, wherein  $R^1$  is H.
123. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 13, wherein  $R^1$  is halogen.
124. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 13, wherein  $R^1$  is  $CF_3$ .
125. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 13, wherein  $R^2$  is H.
126. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 13, wherein  $R^2$  is a stabilized phosphate prodrug.
127. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 13, wherein  $R^2$  is acyl.
128. (previously added) The pharmaceutical composition of claim 16, wherein  $R^1$  is OH.
129. (previously added) The pharmaceutical composition of claim 16, wherein  $R^1$  is H.
130. (previously added) The pharmaceutical composition of claim 16, wherein  $R^1$  is halogen.
131. (previously added) The pharmaceutical composition of claim 16, wherein  $R^1$  is  $CF_3$ .
132. (previously added) The pharmaceutical composition of claim 16, wherein  $R^2$  is H.
133. (previously added) The pharmaceutical composition of claim 16, wherein  $R^2$  is a stabilized phosphate prodrug.
134. (previously added) The pharmaceutical composition of claim 16, wherein  $R^2$  is acyl.

135. (previously added) The method of claim 18, wherein  $R^1$  is OH.
136. (previously added) The method of claim 18, wherein  $R^1$  is H.
137. (previously added) The method of claim 18, wherein  $R^1$  is halogen.
138. (previously added) The method of claim 18, wherein  $R^1$  is  $CF_3$ .
139. (previously added) The method of claim 18, wherein  $R^1$  is lower alkyl.
140. (previously added) The method of claim 18, wherein  $R^2$  is H.
141. (previously added) The method of claim 18, wherein  $R^2$  is a stabilized phosphate prodrug.
142. (previously added) The method of claim 18, wherein  $R^2$  is acyl.
143. (previously added) The method of claim 19, wherein Base is a purine base.
144. (previously added) The method of claim 19, wherein Base is a pyrimidine.
145. (previously added) The method of claim 19, wherein Base  $R^1$  is OH.
146. (previously added) The method of claim 19, wherein  $R^1$  is H.
147. (previously added) The method of claim 19, wherein  $R^1$  is halogen.
148. (previously added) The method of claim 19, wherein  $R^1$  is  $CF_3$ .
149. (previously added) The method of claim 19, wherein  $R^1$  is lower alkyl.
150. (previously added) The method of claim 19, wherein  $R^2$  is H.
151. (previously added) The method of claim 19, wherein  $R^2$  is a stabilized phosphate prodrug.
152. (previously added) The method of claim 19, wherein  $R^2$  is acyl.
153. (previously added) The method of claim 20, wherein  $R^1$  is OH.
154. (previously added) The method of claim 20, wherein  $R^1$  is H.
155. (previously added) The method of claim 20, wherein  $R^1$  is halogen.
156. (previously added) The method of claim 20, wherein  $R^1$  is  $CF_3$ .
157. (previously added) The method of claim 20, wherein  $R^1$  is lower alkyl.
158. (previously added) The method of claim 20, wherein  $R^2$  is H.
159. (previously added) The method of claim 20, wherein  $R^2$  is a stabilized phosphate prodrug.
160. (previously added) The method of claim 20, wherein  $R^2$  is acyl.
161. (previously added) The method of claim 21, wherein Base is a purine base.
162. (previously added) The method of claim 21, wherein Base is a pyrimidine.

163. (previously added) The method of claim 21, wherein  $R^1$  is OH.
164. (currently amended) The method of claim 21, wherein ~~and~~  $R^1$  is H.
165. (previously added) The method of claim 21, wherein  $R^1$  is halogen.
166. (currently amended) The method of claim 21, wherein ~~and~~  $R^1$  is  $CF_3$ .
167. (previously added) The method of claim 21, wherein  $R^1$  is lower alkyl.
168. (previously added) The method of claim 21, wherein  $R^2$  is H.
169. (previously added) The method of claim 21, wherein  $R^2$  is a stabilized phosphate prodrug.
170. (previously added) The method of claim 21, wherein  $R^2$  is acyl.
171. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^1$  is H.
172. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^1$  is halogen.
173. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^1$  is  $CF_3$ .
174. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^1$  is lower alkyl.
175. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^2$  is H.
176. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^2$  is a stabilized phosphate prodrug.
177. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 22, wherein  $R^2$  is acyl.
178. (previously added) The pharmaceutical composition of claim 25, wherein  $R^2$  is H.
179. (previously added) The pharmaceutical composition of claim 25, wherein  $R^2$  is a stabilized phosphate prodrug.
180. (previously added) The pharmaceutical composition of claim 25, wherein  $R^2$  is acyl.
181. (previously added) The method of claim 27, wherein  $R^2$  is H.
182. (previously added) The method of claim 27, wherein  $R^2$  is a stabilized phosphate prodrug.
183. (previously added) The method of claim 27, wherein  $R^2$  is acyl.
184. (previously added) The method of claim 28, wherein Base is a purine base.
185. (previously added) The method of claim 28, wherein Base is a pyrimidine base.
186. (previously added) The method of claim 28, wherein  $R^1$  is OH.
187. (previously added) The method of claim 28, wherein  $R^1$  is H.

188. (previously added) The method of claim 28, wherein R<sup>1</sup> is halogen.
189. (previously added) The method of claim 28, wherein R<sup>1</sup> is CF<sub>3</sub>.
190. (previously added) The method of claim 28, wherein R<sup>1</sup> is lower alkyl.
191. (previously added) The method of claim 28, wherein R<sup>2</sup> is H.
192. (previously added) The method of claim 28, wherein R<sup>2</sup> is a stabilized phosphate prodrug.
193. (previously added) The method of claim 28, wherein R<sup>2</sup> is acyl.
194. (previously added) The method of claim 29, wherein R<sup>1</sup> is OH.
195. (previously added) The method of claim 29, wherein R<sup>1</sup> is H.
196. (previously added) The method of claim 29, wherein R<sup>1</sup> is halogen.
197. (previously added) The method of claim 29, wherein R<sup>1</sup> is CF<sub>3</sub>.
198. (previously added) The method of claim 29, wherein R<sup>1</sup> is lower alkyl.
199. (previously added) The method of claim 29, wherein R<sup>2</sup> is H.
200. (previously added) The method of claim 29, wherein R<sup>2</sup> is a stabilized phosphate prodrug.
201. (previously added) The method of claim 29, wherein R<sup>2</sup> is acyl.
202. (previously added) The method of claim 30, wherein Base is a purine base.
203. (previously added) The method of claim 30, wherein Base is a pyrimidine base.
204. (previously added) The method of claim 30, wherein R<sup>1</sup> is H.
205. (previously added) The method of claim 30, wherein R<sup>1</sup> is halogen.
206. (previously added) The method of claim 30, wherein R<sup>1</sup> is CF<sub>3</sub>.
207. (previously added) The method of claim 30, wherein R<sup>1</sup> is lower alkyl.
208. (previously added) The method of claim 30, wherein R<sup>2</sup> is H.
209. (previously added) The method of claim 30, wherein R<sup>2</sup> is a stabilized phosphate prodrug.
210. (previously added) The method of claim 30, wherein R<sup>2</sup> is acyl.
211. (previously added) The 2'-fluoro-β-L-nucleoside of claim 31, wherein R<sup>1</sup> is CF<sub>3</sub>.
212. (previously added) The 2'-fluoro-β-L-nucleoside of claim 31, wherein R<sup>1</sup> is lower alkyl.
213. (previously added) The 2'-fluoro-β-L-nucleoside of claim 31, wherein R<sup>2</sup> is H.

- 214. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 31, wherein  $R^2$  is a stabilized phosphate prodrug.
- 215. (previously added) The 2'-fluoro- $\beta$ -L-nucleoside of claim 31, wherein  $R^2$  is acyl.
- 216. (previously added) The pharmaceutical composition of claim 34, wherein  $R^1$  is  $CF_3$ .
- 217. (previously added) The pharmaceutical composition of claim 34, wherein  $R^1$  is lower alkyl.
- 218. (previously added) The pharmaceutical composition of claim 34, wherein  $R^2$  is H.
- 219. (previously added) The pharmaceutical composition of claim 34, wherein  $R^2$  is a stabilized phosphate prodrug.
- 220. (previously added) The pharmaceutical composition of claim 34, wherein  $R^2$  is acyl.
- 221. (previously added) The method of claim 36, wherein Base is a purine base.
- 222. (previously added) The method of claim 36, wherein Base is a pyrimidine base.
- 223. (previously added) The method of claim 36, wherein  $R^1$  is  $CF_3$ .
- 224. (previously added) The method of claim 36, wherein  $R^1$  is lower alkyl.
- 225. (previously added) The method of claim 36, wherein  $R^2$  is H.
- 226. (previously added) The method of claim 36, wherein  $R^2$  is a stabilized phosphate prodrug.
- 227. (previously added) The method of claim 36, wherein  $R^2$  is acyl.
- 228. (previously added) The method of claim 37, wherein Base is a purine base.
- 229. (previously added) The method of claim 37, wherein Base is a pyrimidine base.
- 230. (previously added) The method of claim 37, wherein  $R^1$  is  $CF_3$ .
- 231. (previously added) The method of claim 37, wherein  $R^1$  is lower alkyl.
- 232. (previously added) The method of claim 37, wherein  $R^2$  is H.
- 233. (previously added) The method of claim 37, wherein  $R^2$  is a stabilized phosphate prodrug.
- 234. (previously added) The method of claim 37, wherein  $R^2$  is acyl.
- 235. (previously added) The method of claim 38, wherein  $R^1$  is  $CF_3$ .
- 236. (previously added) The method of claim 38, wherein  $R^1$  is lower alkyl.
- 237. (previously added) The method of claim 38, wherein  $R^2$  is H.

238. (previously added) The method of claim 38, wherein  $R^2$  is a stabilized phosphate prodrug.
239. (previously added) The method of claim 38, wherein  $R^2$  is acyl.
240. (previously added) The method of claims 1-3, 9-12, 18-21, 27-30, or 36-38 wherein the purine base is selected from adenine,  $N^6$ -alkylpurines,  $N^6$ -acylpurines (wherein acyl is  $C(O)(\text{alkyl}, \text{aryl}, \text{alkylaryl}, \text{or arylalkyl})$ ,  $N^6$ -benzylpurine,  $N^6$ -halopurine,  $N^6$ -vinylpurine,  $N^6$ -acetylenic purine,  $N^6$ -acyl purine,  $N^6$ -hydroxyalkyl purine,  $N^6$ -thioalkyl purine,  $N^2$ -alkylpurines,  $N^2$ -alkyl-6-thiopurines,  $N^2$ -alkylpurines,  $N^2$ -alkyl-6-thiopurines, guanine, hypoxanthine, 2,6-diaminopurine, 2-chloro-2-aminopurine, inosine, or 6-chloropurine.
241. (previously added) The method of any of claims 1-3, 9-12, 18-21, 27-30, or 36-38 wherein the pyrimidine base is selected from thymine, cytosine, 5-fluorocytosine, 5-methylcytosine, 6-azapyrimidine, including 6-azacytosine, 2- and/or 4-mercaptopyrimidine, uracil, 5-halouracil, including 5-fluorouracil,  $C^5$ -alkylpyrimidines,  $C^5$ -benzylpyrimidines,  $C^5$ -halopyrimidines,  $C^5$ -vinylpyrimidine,  $C^5$ -acetylenic pyrimidine,  $C^5$ -acyl pyrimidine,  $C^5$ -hydroxyalkyl purine,  $C^5$ -amidopyrimidine,  $C^5$ -cyanopyrimidine,  $C^5$ -nitropyrimidine,  $C^5$ -aminopyrimidine, 5-azacytidinyl, 5-azauracilyl, triazolopyridinyl, imidazolopyridinyl, pyrrolopyrimidinyl, or pyrazolopyrimidinyl.
242. (previously added) The pharmaceutical composition of any of claims 7, 16, 25, or 34 wherein the purine base is selected from adenine,  $N^6$ -alkylpurines,  $N^6$ -acylpurines (wherein acyl is  $C(O)(\text{alkyl}, \text{aryl}, \text{alkylaryl}, \text{or arylalkyl})$ ,  $N^6$ -benzylpurine,  $N^6$ -halopurine,  $N^6$ -vinylpurine,  $N^6$ -acetylenic purine,  $N^6$ -acyl purine,  $N^6$ -hydroxyalkyl purine,  $N^6$ -thioalkyl purine,  $N^2$ -alkylpurines,  $N^2$ -alkyl-6-thiopurines,  $N^2$ -alkylpurines,  $N^2$ -alkyl-6-thiopurines, guanine, hypoxanthine, 2,6-diaminopurine, 2-chloro-2-aminopurine, inosine, or 6-chloropurine.
243. (previously added) The pharmaceutical composition of any of claims 7, 16, 25, or 34 wherein the pyrimidine base is selected from thymine, cytosine, 5-fluorocytosine, 5-methylcytosine, 6-azapyrimidine, including 6-azacytosine, 2- and/or 4-mercaptopyrimidine, uracil, 5-halouracil, including 5-fluorouracil,  $C^5$ -alkylpyrimidines,  $C^5$ -benzylpyrimidines,  $C^5$ -halopyrimidines,  $C^5$ -vinylpyrimidine,  $C^5$ -acetylenic pyrimidine,  $C^5$ -acyl pyrimidine,  $C^5$ -hydroxyalkyl purine,  $C^5$ -amidopyrimidine,  $C^5$ -

- cyanopyrimidine, C<sup>5</sup>-nitropurimidine, C<sup>5</sup>-aminopyrimidine, 5-azacytidinyl, 5-azauracilyl, triazolopyridinyl, imidazolopyridinyl, pyrrolopyrimidinyl, or pyrazolopyrimidinyl.
244. (previously added) The 2'-fluoro-(β-D or β-L)-nucleoside of claim 4, wherein the purine base is selected from adenine, N<sup>6</sup>-alkylpurines, N<sup>6</sup>-acylpurines (wherein acyl is C(O)(alkyl, aryl, alkylaryl, or arylalkyl), N<sup>6</sup>-benzylpurine, N<sup>6</sup>-halopurine, N<sup>6</sup>-vinylpurine, N<sup>6</sup>-acetylenic purine, N<sup>6</sup>-acyl purine, N<sup>6</sup>-hydroxyalkyl purine, N<sup>6</sup>-thioalkyl purine, N<sup>2</sup>-alkylpurines, N<sup>2</sup>-alkyl-6-thiopurines, N<sup>2</sup>-alkyl-6-thiopurines, guanine, hypoxanthine, 2,6-diaminopurine, 2-chloro-2-aminopurine, inosine, or 6-chloropurine.
245. (previously added) The 2'-fluoro-(β-D or β-L)-nucleoside of claim 4, wherein the pyrimidine base is selected from thymine, cytosine, 5-fluorocytosine, 5-methylcytosine, 6-azapyrimidine, including 6-azacytosine, 2- and/or 4-mercaptopyrimidine, uracil, 5-halouracil, including 5-fluorouracil, C<sup>5</sup>-alkylpyrimidines, C<sup>5</sup>-benzylpyrimidines, C<sup>5</sup>-halopyrimidines, C<sup>5</sup>-vinylpyrimidine, C<sup>5</sup>-acetylenic pyrimidine, C<sup>5</sup>-acyl pyrimidine, C<sup>5</sup>-hydroxyalkyl purine, C<sup>5</sup>-amidopyrimidine, C<sup>5</sup>-cyanopyrimidine, C<sup>5</sup>-nitropurimidine, C<sup>5</sup>-aminopyrimidine, 5-azacytidinyl, 5-azauracilyl, triazolopyridinyl, imidazolopyridinyl, pyrrolopyrimidinyl, or pyrazolopyrimidinyl.
246. (previously added) The 2'-fluoro-β-L-nucleoside of any of claims 13, 22 or 31, wherein the purine base is selected from adenine, N<sup>6</sup>-alkylpurines, N<sup>6</sup>-acylpurines (wherein acyl is C(O)(alkyl, aryl, alkylaryl, or arylalkyl), N<sup>6</sup>-benzylpurine, N<sup>6</sup>-halopurine, N<sup>6</sup>-vinylpurine, N<sup>6</sup>-acetylenic purine, N<sup>6</sup>-acyl purine, N<sup>6</sup>-hydroxyalkyl purine, N<sup>6</sup>-thioalkyl purine, N<sup>2</sup>-alkylpurines, N<sup>2</sup>-alkyl-6-thiopurines, N<sup>2</sup>-alkylpurines, N<sup>2</sup>-alkyl-6-thiopurines, guanine, hypoxanthine, 2,6-diaminopurine, 2-chloro-2-aminopurine, inosine, or 6-chloropurine.
247. (previously added) The 2'-fluoro-β-L-nucleoside of any of claims 13, 22 or 31, wherein the pyrimidine base is selected from thymine, cytosine, 5-fluorocytosine, 5-methylcytosine, 6-azapyrimidine, including 6-azacytosine, 2- and/or 4-mercaptopyrimidine, uracil, 5-halouracil, including 5-fluorouracil, C<sup>5</sup>-alkylpyrimidines, C<sup>5</sup>-benzylpyrimidines, C<sup>5</sup>-halopyrimidines, C<sup>5</sup>-vinylpyrimidine, C<sup>5</sup>-acetylenic pyrimidine, C<sup>5</sup>-acyl pyrimidine, C<sup>5</sup>-hydroxyalkyl purine, C<sup>5</sup>-amidopyrimidine, C<sup>5</sup>-



Appl. No. 10/061,128  
Amdt. dated September 10, 2003  
Reply to Office Action of March 10, 2003

cyanopyrimidine, C<sup>5</sup>-nitropyrimidine, C<sup>5</sup>-aminopyrimidine, 5-azacytidinyl, 5-azauracilyl, triazolopyridinyl, imidazolopyridinyl, pyrrolopyrimidinyl, or pyrazolopyrimidinyl.

### REMARKS/ARGUMENTS

Claims 1-247 remain in the application. Claims 20, 164 and 166 have been amended, to correct inadvertent typographical errors.

A Supplemental Information Disclosure Statement is enclosed with this Response.

#### Allowed Claims

In the outstanding Office Action, the Examiner has indicated that claims 1-19, 21-152, 161-239 and 242-247 are allowed.


It is submitted that each of the pending claims as amended herein are in condition for allowance.

#### Rejections under 35 U.S.C. § 112, second paragraph

Claims 20, 153-160, 240 and 241 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 20 has been amended to correct an inadvertent typographical error to recite a "3'-fluoro- $\beta$ -L-nucleoside" in the preamble as requested by the Examiner, thus obviating this rejection. Claims 153-160, 240 and 241 depend from claim 20, and thus the amendment to claim 20 obviates the rejection to those claims also.

In view of the above amendments, it is submitted that the claims are in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

By:   
Sherry M. Knowles  
Reg. No. 33,052

Date: September 10, 2003  
KING & SPALDING, LLP.  
191 Peachtree Street, N.E.  
Atlanta, Georgia 30303-1763  
Office: (404) 572-4600  
Fax: (404) 572-5145

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 6,911,424  
DATED : January 30, 2002  
INVENTOR(S) : Raymond F. Schinazi et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 1 line 6, add "The invention described herein was made with Government support under grant number AI32351 awarded by the National Institutes of Health. The United States Government has certain rights to this invention."

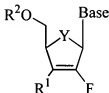
Column 67, delete lines 12 through 29 and insert therefor:

"R<sup>1</sup> is OH, H, OR<sup>1</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino, or di(lower)alkylamino;

R<sup>2</sup> is H, phosphate, including monophosphate, diphosphate, triphosphate, or a stabilized phosphate prodrug, acyl, phosphaté, phosphonate, a lipid or an amino acid; and"

Column 68, line 36, insert the following:

"



Y = S, CH<sub>2</sub> or CHF

wherein

Base is a purine base;

R<sup>1</sup> is H, OR<sup>1</sup>, N<sub>3</sub>, CN, halogen, CF<sub>3</sub>, lower alkyl, amino, loweralkylamino or di(lower)alkylamino;

R<sup>2</sup> is H, monophosphate, diphosphate, triphosphate, a stabilized phosphate prodrug, acyl, phosphate, phosphonate, a lipid or an amino acid; and"

Column 68, delete line 64 through column 69, line 2.

MAILING ADDRESS OF SENDER:

John Ezcurra, Ph.D., King & Spalding, LLP  
34<sup>th</sup> Floor, 1180 Peachtree Street, N.E.  
Atlanta, Georgia 30309-3521

PATENT NO. 6,911,424

No. of add'l copies  
@ 30¢ per page

FORM PTO 1050 (REV. 3-82)